```
Smoking Fish
>The fisherman's catch, if properly preserved, can be a welcome addition
>to family meals over a period of several weeks or months. Smoking is an
>excellent way to preserve fish that you don't plan to eat right away.
>Fish is smoked as it dries over a smoldering fire. Wood smoke adds
>flavor and color; the brining process helps to preserve the fish.
>Smoking Methods
>There are two general methods of smoking fish: hot-smoking and
>cold-smoking.
>Hot-smoking (also called barbecuing or kippering) requires a short
>brining time and smoking temperatures of 90°F for the first 2 hours and
>150°F for an additional 4-8 hours. Hot-smoked fish are moist, lightly
>salted, and fully cooked, but they will keep in the refrigerator for
>only a few days.
>Cold-smoking requires a longer brining time, lower temperature (80-90°F)
>and extended smoking time (1-5 days or more of steady smoking).
>Cold-smoked fish contain more salt and less moisture than hot-smoked
>fish. If the fish has been sufficiently cured, it will keep in the
>refrigerator for several months.
>Parasites In Fish
>Freshwater and marine fish naturally contain many parasites. These
>parasites are killed during the hot-smoking process, if the temperature
>reaches 140°F. Use commercially frozen fish for cold-smoked fish and
>lox, or freeze the fish to -10°F for at least 7 days to kill any
>parasites that may be present. Freezing to -10°F is not possible in most
>home freezers.
>
>Smoking Tips
>Any fish can be smoked, but species high in fat (oil) such as salmon and
>trout are recommended because they absorb smoke faster and have better
>texture than lean fish, which tend to be dry and tough after smoking.
>Use seasoned non-resinous woods: hickory, oak, apple, maple, birch,
>beech, or alder. Avoid: pine, fir, spruce, etc. or green woods. If
>heavier smoke flavor is desired, add moist sawdust to the heat source
>throughout the smoking process.
>Control heat by adjusting air flow.
>Control temperature:
>a. Hot-smoking--90°F for the first 2 hours; 150°F for remaining smoking
>time
>
>b. Cold-smoking--80-90°F for 1-5 days or more
>c. Lox--70-80°F for 1-3 days
>
>Preparing Fish For Smoking
```

```
>Use only freshly-caught fish that have been kept clean and cold. Fish
>that have been handled carelessly or stored under improper conditions
>will not produce a satisfactory finished product. Do not use bruised,
>broken, or otherwise damaged flesh.
>If you catch your fish, clean and pack them in ice before starting home.
>When you get home, store the fish in the refrigerator until you are
>ready to prepare them for smoking.
>Different fish species generally require specific preparation methods.
>Salmon are split (backbone removed); bottom fish filleted; herring
>headed and gutted, and smelt dressed. The following preparation steps
>can be applied to any fish:
>1. Remove scales by scraping against the grain with the dull edge of a
>knife.
>2. Remove head, fins, tail, viscera.
>3. Wash body cavity with running cold water to remove all traces of
>blood and kidney tissue (dark red mass along the backbone).
>4. Split the fish by cutting through the rib bones along the length of
>one side of the backbone.
>5. For large fish, remove the backbone by cutting along the other side
>of the backbone to produce two fillets or boneless sides. For small
>fish, the backbone can be left attached to one of the sides.
>6. Cut the sides of large fish into uniform pieces about 1* inches thick
>and 2 inches wide. Small fish halves can be brined and smoked in one
>piece.
>
>Preparing Brine
>Prepare a brine of 3* cups table salt in 1 gallon of cold water in a
>plastic, stainless steel, or crockery container. Red or white wine can
>be substituted for a portion or all of the water, if desired. Stir the
>salt until a saturated solution is formed.
>Spices such as black pepper, bay leaves, seafood seasoning, or garlic,
>as well as brown sugar, may be added to the brine depending on your
>preference.
>Use 1 gallon of brine for every 4 pounds of fish. Brine fish in the
>refrigerator, if possible.
>Keep the fish covered with brine throughout the brining period. A heavy
>bowl can be floated on the brine to keep the fish submersed, but do not
>pack the fish so tightly that the brine cannot circulate around each
>piece.
>
>Cold-Smoking
>1. To cold-smoke fish, follow steps 1-6 under "Preparing Fish for
>Smoking."
>2. Brine *-inch-thick fillets for * hour; 1-inch-thick fillets for 1
>hour; and 1*-inch-thick fillets for 2 hours. Brining times can be
>lengthened if the cold-smoked fish are to be preserved for long periods
```

```
>of time.
>3. After brining, rinse the fish briefly in cold running water.
>4. Place the fish skin-side down on greased racks in a cool shady,
>breezy place to dry. The fish should dry for 2 to 3 hours or until a
>shiny skin or pellicle has formed on the surface. A fan will speed
>pellicle formation.
>5. Place the fish in a homemade or commercial smoker. The temperature of
>the smoker should be kept at about 80°F, and should never exceed 90°F.
>If a thermometer is not available, the temperature may be tested by
>hand. If the air in the smoke-house feels distinctly warm, the
>temperature is too high.
>6. Smoke the fish until its surface is an even brown. Small fish that
>are to be kept 2 weeks or less may be ready in 24 hours. Salmon and
>other large fish will require 3 to 4 days and nights of steady smoking.
>To store longer than 2 weeks, smoke all fish a minimum of five days; for
>larger fish, at least a week or longer.
>7. The smoker should not produce a lot of smoke during the first 8 to 12
>hours if the total curing time is 24 hours, or for the first 24 hours if
>the curing time is longer. When the first part of the smoking ends,
>build up a dense smoke and maintain it for the balance of the cure.
>8. If cold-smoked fish has been brined for at least 2 hours and smoked
>for at least 5 days, it will keep in the refrigerator for several
>months.
>
>
>Lox
>Lox is similar to cold-smoked salmon, but is moist, lightly salted and
>lightly smoked. Much practice and experience are needed to prepare
>satisfactory lox. The appropriate length of brining and smoking to
>produce lox that suit one's taste is determined mainly through trial.
>Lox can be prepared following the instructions for cold-smoking with the
>following modifications:
>a. Smoke at 70-80°F for 1 to 3 days (temperatures above 80°F will cook
>the fish).
>b. To give a sheen to the surface of lox, rub with vegetable oil after
>the smoking is completed.
>c. In the refrigerator, lox will keep for 1 to 2 weeks. It will keep
>longer, if frozen.
>Hot-Smoking
>1. To hot-smoke fish, follow steps 1-6 under "Preparing Fish for
>Smoking."
>2. Brine *-inch-thick fillets for about 15 minutes, 1-inch-thick pieces
>about 30 minutes, and 1*-inch-thick pieces about 1 hour. Brining times
>can be adjusted to give the fish a lighter or heavier cure.
>3. After brining, rinse the fish briefly in cold running water.
>4. Place the fish skin-side down on greased racks in a cool, shady,
```

>breezy place to dry. The fish should dry for 2 to 3 hours or until a >shiny skin or pellicle forms on the surface. The pellicle seals the >surface and prevents loss of natural juices during smoking. A fan will >speed pellicle formation. >5. Place the fish in a homemade or commercial smoker. For the first 2 >hours, the temperature should not exceed 90°F. This completes the >pellicle formation and develops brown coloring. >6. After the initial 2-hour period, raise the temperature to 150°F and >smoke the fish for an additional 4 to 8 hours. The length of time will >depend on the thickness of the fish, and on your preference for dry or >moist smoked fish. Generally, *-inch-thick pieces are smoked for 4 >hours, 1-inch-thick pieces for 6 hours, and 1*-inch-thick pieces for 8 >7. Store hot-smoked fish in the refrigerator. Freeze hot-smoked fish if >it will be stored longer than a few days. >*** >The authors are Robert J. Price, Ph.D., Extension Seafood Technology

>Specialist and Pamela Tom, M.Sc., Staff Research Associate Department of

>Food Science & Technology, University of California, Davis, California 95616-8598